

Northern Illinois University

Dancing with Diabetes

A Thesis Submitted to the University

Honors Program In Partial Fulfillment of

the Requirements of the Baccalaureate

Degree With Upper Division Honors

Department of Nursing

By

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Dekalb Illinois

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University Honors Program

Capstone Approval Page

Capstone Title: Dancing With Diabetes

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Department of Nursing

Date of Approval: 12/9/12

HONORS THESIS ABSTRACT

Diabetes is the 7th leading cause of death in the United States, and accounts for \$116 billion in direct medical costs (American Association of Diabetes Educators, 2011). For those who are at risk for developing this lifelong disease, education for prevention is key. Education for this disease is generally covered by one's private insurance, but is not available to those who have public insurance or to those who self pay. I am using my capstone, "Dancing With Diabetes", as a diabetes prevention tool directed to the underserved in the Tri County area.

"Dancing with Diabetes" is a program with a focus on prevention of diabetes directed towards Tri County Clinic clients who have prediabetes. During this seminar, clients were taught about what the disease process is, the complications, and preventative tools that can be used to secure their health. Participants were educated through means of a PowerPoint, an interactive video, a dance class, and a snack option that was given to participants to taste themselves. The amount of participants that came to the presentation was a small number but the small number was helpful in facilitating conversation, and creating a comfortable atmosphere. After conducting this seminar, I analyzed components that went well, and others that needed improvement. "Dancing With Diabetes" was a great opportunity for the Tri County Clinic clients, and also a great learning experience for myself.

December 2011

Dancing With Diabetes

Introduction:

The American Association of Diabetes Educators states that 79 million Americans ages 20 and older are estimated to have pre-diabetes. Those individuals are at risk for developing diabetes and becoming one of the 25.8 + million people affected by the disease in America today (American Diabetes Association, 2011). Diabetes is a deadly disease that can affect every system in the body causing blindness, kidney disease, nervous system disease, amputations and many more complications that are not only traumatic for a patient but also costly (Lewis, et. al. 2007).

Through my community health nursing class, I discovered that Diabetes Self Management Education (DSME) was generally covered by one's private health insurance, but was not covered or available to the publicly insured or self-pay patients. Therefore, those most in need of the education that would enable them to care for themselves once diagnosed often have the least access to this critical information.

Worse yet, in the United States today, there is inadequate emphasis on preventive education, which would assist those at risk to identify their personal risk factors, and make lifestyle changes that would delay or prevent the onset of the disease. I was surprised that something as important as preventive education was not being aggressively offered to everyone – especially the underserved.

As a nursing student I have been taught that one of the major roles we assume is that of patient educator. I feel that this Honor's Capstone experience will be a great opportunity to develop a teaching module for underserved individuals who are at risk of developing diabetes. Information to be offered will include an overview of the disease, along with information on how to manage one's diet, and incorporate exercise into a

daily health routine. In summary, the purpose of my capstone will be to develop and implement an educational seminar, and collectively incorporate materials into a teaching toolkit to be saved for future use by the health center where I plan to present the program.

Review of Research:

The research that I have conducted for this capstone has also involved the knowledge that I have gained through my years at this university. My nursing classes have contributed a tremendous amount of information in regards to the disease process, the risks, the complications that can occur with this disease, treatment, and preventative measures. The courses that have prepared me for this seminar includes: Pathophysiology, Health Assessment, Adult Health Nursing I/II, Pharmacology, Processes for Nursing Leadership, Community Health Nursing, and all of my clinical experiences. In addition to my educational background and experiences, I have also used my Medical Surgical Nursing book, and numerous accredited websites in order to understand the disease process, and how to prevent the onset of the disease.

The other component of this seminar includes a dance class. In order to teach this dance class I have had a great deal of training and experience in order to prepare myself for this type of presentation. Throughout college I have not only taken numerous dance training courses through Northern Dance Theatre but have served as VP of NDT, have been involved in countless performances, and have taught dance classes for my peers, and for young teens at Megleo's School of Dance in Rolling Meadows. A piece that I recently choreographed was also featured on the Northern Star website as part of a

documentary. In addition, I have just recently been hired to teach an after school DARE dance program on the south side of Chicago for a high school.

American Diabetes Association:

According to the American Diabetes Association, before developing type 2 diabetes, people often have prediabetes. Meaning that the blood glucose levels are higher than normal but not yet high enough to be diagnosed as diabetes. There are 79 million people in the United States who have prediabetes. People who are prediabetic are still at risk for developing long term damage to the body.

Type 1 diabetes is usually diagnosed in children and young adults, and is where the body does not produce insulin. The ADA also mentions that Insulin is a hormone that is needed to convert sugar, starches and other food into energy needed for daily life. Only 5% of people diagnosed with diabetes actually have type 1 diabetes.

Type 2 diabetes is the most common form of diabetes. Type 2 diabetes is more common in African Americans, Latinos, Native Americans, and Asian Americans, Native Hawaiians and other Pacific Islanders, as well as the aged population. Other risk factors include those with impaired glucose tolerance (IGT) and/or impaired fasting glucose (IFG), over age 45, people with a family history of diabetes, overweight, people who do not exercise regularly, low HDL cholesterol or high triglycerides, and people who have high blood pressure. In type 2 diabetes, either the body does not produce enough insulin or the cells ignore the insulin. Insulin is important for the body to be able to use glucose for energy. When you eat food, the body breaks down all of the sugars and starches into glucose. Insulin takes the sugar from the blood into the cells. When glucose builds up in

the blood instead of going into cells, it can lead to diabetes complications (American Diabetes Association, 2011).

Part of my research involved what common people thought about diabetes in order to be fully effective in how I addressed the topic. The ADA had a site where myths and facts were listed. Myth: Diabetes is not that serious of a disease. Fact: Diabetes causes more deaths a year than breast cancer and AIDS combined. Myth: If you have diabetes, you should only eat small amounts of starchy foods, such as bread, potatoes and pasta. Fact: Starchy foods are part of a healthy meal plan. The key is portion control. Those with diabetes, 3-4 servings of carbohydrate-containing foods are appropriate to have in order to maintain a healthy balanced diet. Myth: You can catch diabetes from someone else. Fact: Although the exact cause of why some get diabetes can not be exactly identified this disease can not be caught like a cold or flu. Myth: Fruit is a healthy food. Therefore, it is ok to eat as much of it as you wish. Fact: Although fruit is a healthy food, it also does include sugars, and should not be included as a majority of your meal plan. You should talk to your dietitian about the amount, frequency and types of fruits you should eat. (American Diabetes Association, 2011).

The ADA was helpful with images for my PowerPoint presentation, the risk factor assessment I passed out, and also the YouTube video I showed the participants.

Medical Surgical Nursing, Lewis et al. 2007

Clinical Manifestations of diabetes include: polyuria, polydipsia, polyphagia, fatigue, weakness, sudden vision changes, numbness in hands or feet, dry skin, skin lesion, and infections that are slow healing. Type 1 diabetes may be associated with sudden weight loss or nausea, vomiting, or stomach pains. Type 2 diabetes results from a

slow progressive glucose intolerance and can cause long term complications if not controlled. Complications can include: eye disease, peripheral neuropathy, and peripheral vascular disease. Signs of DKA include abdominal pain, nausea, vomiting, hyperventilation and a fruity breath odor. Lewis et al. also mentions how to determine teaching methods. This was important in developing how I was going to approach this seminar. Lewis et al. explains that it is important to maintain flexibility with regard to teaching approaches, use various tools to complement teaching, written handouts should match the patients learning needs, encourage patients to continue their education about diabetes via websites, and magazines.

Centers for Disease Control and Prevention

The CDC was a great resource in order to obtain statistics and different kinds of graphs depicting the prevalence of diabetes in the US.

Diabetes affects 25.8 million people in the US. There are 18.8 million diagnosed and there are 7.0 undiagnosed. In 2005–2008, based on fasting glucose or hemoglobin A1c levels, 35% of U.S. adults aged 20 years or older had prediabetes (50% of adults aged 65 years or older). Applying this percentage to the entire U.S. population in 2010 yields an estimated 79 million American adults aged 20 years or older with prediabetes. The CDC also mentions that diabetes is the leading cause of kidney failure, non-traumatic lower- limb amputations, and new cases of blindness among adults in the United States. In terms of prediabetes the CDC states that people with prediabetes who lose weight and increase their physical activity can prevent or delay type 2 diabetes and in some cases return their blood glucose levels to normal. The Diabetes Prevention Program (DPP), showed that lifestyle intervention to lose weight and increase physical activity reduced

the development of type 2 diabetes by 58% during a 3-year period. This was important to mention during my presentation because I felt that it gave encouragement to make a change. I also used various graphs, and charts from the CDC in my PowerPoint.

AADE American Association of Diabetes Educators

Statistics found from the AADE were cited from the CDC, and were a repeat of information for me. It was helpful to know that the websites that I was using were all up to date on current information and that they were all in agreement. The AADE stated that the cost of diabetes in 2007 was \$174 billion, and that the direct medical cost was \$116 billion. Type 1 diabetes only accounts for a small amount of this economic burden, and the majority of this expenditure is from type 2 diabetes. About 7million Americans have diabetes, and account for 32% of Medicare spending.

Prediabetes is a condition that raises the risk of developing type 2 diabetes. Those who have prediabetes have blood glucose levels higher than normal but not high enough to be considered diabetic. Self management can be effective in preventing further development of prediabetes.

Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells. These cells are needed to make the hormone insulin to regulate glucose levels. There is no way to prevent type 1 diabetes.

Type 2 diabetes accounts for 90-95% of all diagnosed cases of diabetes. This condition usually begins as insulin resistance, which is a disorder where the cells do not use the insulin properly. When the need for insulin rises, the pancreas loses its ability to produce this hormone. Type 2 diabetes is associated with age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical

inactivity, and race/ethnicity. Ethnicities that are at high risk for type 2 diabetes are African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans, and Native Hawaiians or other Pacific Islanders.

A great aspect of this website is that this website allows you to look up where diabetes education classes are offered. Illinois offers classes in Hinsdale, Bolingbrook, Springfield, Riverside, Lake Forest, Joliet, Rockford, and Carbondale. There are no diabetes education seminars in the Dekalb area. This website also offers guidelines for the practice of diabetes education.

Guidelines for the Practice of Diabetes Education:

The AADE Guidelines for the Practice of Diabetes Self-Management Education and Training (DSME/T) describe the implementation of The Scope of Practice, Standards of Practice and Standards of Professional Performance for Diabetes Educators. These guidelines support the delivery of DSME/T within the framework of the AADE7™ Self-Care Behaviors and The National Standards for Diabetes Self-Management Education. The roles and responsibilities delineated in these AADE guidelines can be used by individuals and organizations involved in the facilitation and delivery of diabetes education and care for persons with or at risk for diabetes and their families/caregivers.

The AADE lists five domains for education of diabetes. The first domain is the pathophysiology, epidemiology, and clinical guidelines of diabetes. Domain II is the culturally competent supportive care across the lifespan. Domain III involves teaching and learning change to facilitate self-management skills of individuals with diabetes. Domain IV involves self management education tailored to the patient self-management education needs. The final domain is program and business management, which includes

creating a climate that supports successful self-management of diabetes. The AADE was very helpful for giving tips on how to conduct an education seminar but my focus is on preventing the disease and my audience was prediabetics, not those who already have diabetes.

Measurement:

This seminar is to be measured by a pre/post test in order to evaluate whether or not the presentation was effective. The pre/post test includes five questions asking ways diabetes affects the body, identification of personal risk factors, lifestyle changes, and the understanding of portion control in correlation to diabetes. This test is to be handed out before the start of the presentation, and also after the completion of the presentation. The pre/post test is not graded in terms of right or wrong, but in terms of whether or not the participant understands the concept.

The Process:

In my spring 2011 semester, I was listening to my instructor, Mary Rudnicki in my Community Health Nursing class. I heard my instructor mention that diabetes education is not available for everyone in the US. I started to think about why this was an issue and how education could help people understand what the disease is, and how education could prevent complications of diabetes. During this time of the semester I knew I needed to decide on an idea for my capstone. I thought this would be a great opportunity to create a capstone that was helpful to others, and was also interesting to me.

After deciding that I wanted to create a diabetes seminar as my capstone, I reached out to my Community Health Nursing instructor, Mary Rudnicki, M.S., R.N, and also my Pediatric Nursing instructor, Patricia Braun, D. Sc. in Nursing, P.N.P. My instructors encouraged me to pursue the concept of an interactive diabetes education class. Professor Rudnicki asked me to start by developing the focus of the seminar and to research information on the topic. She then asked me to formulate a name, description, goal, objectives, outcomes, and who the audience would be. Professor Rudnicki and I both re-worked the wording many times before making it final.

The title of the seminar would be "Dancing With Diabetes". The purpose of this seminar was to educate and engage those at risk for developing diabetes in an hour-long seminar that focuses on the processes of the disease, risk factors, lifestyle changes, and involves the group in a dance class at the end. The goal was to design a presentation, which will focus on the preventative aspects of diabetes. My objectives included:

- Power point presentation- explaining the pathophysiology of diabetes, identification of risk factors, and looking at ways to delay, or prevent the onset of the disease, by use of diet and exercise.
- Engage the group in discussion of what they enjoy eating, and how to improve their diet by including healthy food choices, and utilizing portion control.
- Develop and demonstrate a beginning dance program

Dr. Braun acted as my link of communication to the Tri County Clinic in Dekalb IL. In April 2011, Dr. Braun was able to arrange a meeting with a representative from Tri County, and I was able to discuss my concept, and ideas for the seminar. During this

meeting I was told that there are many people who are in need of diabetes education, and that the population is mainly Hispanic. By May 2011, I had completed the PowerPoint for the diabetes seminar, and had already made multiple revisions with professor Rudnicki. Over the summer I was able to make revisions to the PowerPoint that kept the focus on prediabetes. It was great to have two professors to work with because there were two different perspectives to help me make the best impact for the audience.

When arriving back at school in August, I still needed to develop an exercise program that would be easy to follow, and would give the audience an idea of different fun ways to exercise. I decided to create a short 30-45min dance that was Zumba inspired. The dance was to a popular Shakira song, "Loca". I was able to recruit one of my friends with dance experience to help me demonstrate the dance.

The components of "Dancing With Diabetes" were coming together and it was important to set a date to deliver the presentation. Through Dr. Braun we were able to set the date of October 28th from 3-5pm. I had originally planned to run through the presentation with Tri County before the actual seminar but with time, and availability the practice run did not occur. On the 15th of October I created a flyer to invite patients from Tri County to the seminar. I gave the flyer to Dr. Braun to pass out to as many people as she could, and to post around the Tri County Clinic. Through Dr. Braun I was also able to have an interpreter available at the clinic in order to translate information from the presentation. Professor Rudnicki and I developed a five-question pre/post test for everyone who attended that was basic questions about diabetes. The pre/post test was designed in order to measure the effectiveness of the seminar. Through the American Diabetes Association website I researched healthy options for those who are affected by

diabetes and found that sugar free popsicles can be an alternative snack/desert. I purchased them in order to give an example to the participants, and also the make the presentation more fun.

On October 28th 2011, I had clinical in Aurora for nursing from 7am- 4pm. I had previously explained to my clinical instructor that I had a presentation to give, and she allowed me to leave at 11:30am in order to make it back in time for the presentation. I arrived at the nursing building around 1pm and I was able to print out a risk assessment in Spanish, and in English for everyone who participated. I had already packed my USB drive, the paper plates for the demonstration, and speakers for the music, the popsicles, and also spare clothes to change into for the dance class.

Professor Rudnicki and I left around 2pm from the nursing building to Tri County Clinic. When we arrived Dr. Braun showed us the room, and it was completely packed with tables, and had the dimensions of about 10X10. We were able to clear the room of the tables and brought chairs in for the participants to sit in. We began to set up, and realized that the clinic did not have a projector available, and my laptop had broken down the previous night. Fortunately, I had a projector at my apartment, and was able to grab it in time to give the presentation. Throughout the presentation the participants seemed to understand the concepts of the disease process, and how the body can be affected by diabetes. I was able to answer questions the participants had with the help of my professors, and also with the help of the translator. At the end of the PowerPoint I passed out paper plates to everyone, and explained the concept of "Create Your Own Plate". I instructed the group how to divide up a plate into sections, and what kind of foods those sections should include. The YouTube video, "Create Your Own Plate" helped to review

the concept, and clear up any confusion. It was a great way so everyone could follow along.

Once the video was complete, it was time for the dance class. There were some complications with the set up of the speakers, and I ended up using the laptop for the music. It seemed that everyone was ready to start so I did not waste any time changing into different clothes and began the class. The dance portion went smoothly and I ended the class with a dance circle where everyone took a turn and got to "show off their moves". It was a great way to end the presentation, and the total time between the presentation and the dance class was an hour and a half. The participants were then invited to have a Popsicle to demonstrate an example of what a better option they can choose as a sweet snack or a desert. At that time, I was able to explain that the product only had 15 calories per serving, 0g sugar, 0g of fat, 0mg of sodium, 4g of carbohydrates, 2g of sugar alcohol, and 10% vitamin C. I explained that the Popsicles were something to have as a treat instead of having a piece of cake or ice cream.

Overall, the process should have included a plan for not just the main steps but also for the details. The seminar did have its positive points and was enjoyable regardless of the challenges.

Results:

The seminar included three participants. The effectiveness of this seminar was to be measured by means of a five-question pre/post test. Unfortunately, in the midst of preparing the seminar that day I forgot to print it out, and was not able to hand them out. I did receive plenty of feedback from the participants, and also from my nursing

instructors. The participants seemed to really enjoy the presentation, the video, the dance class, and also having a treat at the end. The participants seemed to really open up about their personal life including verbalizing a plan for beginning a personalized exercise program, and also substituting foods for healthier options. My nursing instructors were able to give me positive feedback, and praised me for my energy, and hard work. They also let me know that in the future it would be a good idea to make sure that technically we are prepared, and that I have all the materials that I need. The participants commented saying that this was surprisingly different than what they expected, and was something that they would participate in again.

Areas for Improvement:

“Dancing With Diabetes” had many areas that could be improved on. The main issues with this seminar were the technical difficulties that were experienced. These problems could have been avoided if there would have been a mock run previous to the actual presentation. This would have allowed me to plan for the lack of projector, the malfunction in the speakers, and the extremely small room. Another issue that needs improvement is the amount of advertising that was conducted. I think there would have been more participants if there had been more advertising for the program. There was only two weeks of passing out the flyer, and most likely there were people who were unaware of this opportunity who would have come. The flyer should have also had instructions to bring extra clothing to change into. No one brought extra clothes, and I didn’t want to stop the presentation from happening in order to change into dance clothing, so we kept moving through the seminar. I should have made a checklist for the

materials that I needed for the day of the presentation. The presentation was interactive which was great because it kept the attention of the participants but there were a lot of components to it, and I think that having a checklist would have made it easier for me to remember everything, and to be better prepared. Another component that would have been great would have been a sign in sheet. A sign in sheet would have allowed me to contact the participants after the seminar, and would have allowed me to reach them after the seminar.

Areas That Went Well:

Despite all of the complications there were many areas that went well throughout the presentation. The group of people that showed up was a small group but at the same time it was great because it allowed the participants to feel more comfortable asking questions, and expressing their own feelings about diabetes. The participants were willing to take part in any of the activities, and they were also patient throughout the process of getting the projector and the speakers set up. The group also had a great positive attitude with the dance portion. They did not seem to have a lot of experience dancing but they were able to feel comfortable enough to try. The participants also felt comfortable dancing one at a time in a dance circle while everyone was clapping to the music. The expression on their faces showed me that they were having a great time.

Summary:

The purpose of this seminar was to educate and engage those at risk for developing diabetes in an hour-long seminar that focuses on the processes of the disease, risk factors,

lifestyle changes, and involves the group in a dance class at the end. I feel that by creating and implementing the seminar, "Dancing with Diabetes" I was able to accomplish the purpose, the goal, and my objectives. "Dancing With Diabetes" was great because it was engaging, educational, and fun. I felt that the participants gained a great experience from the seminar, and did have a positive outlook on their health upon completing this program. This was a learning experience for me because although there was plenty of planning, and preparation involved in this seminar, there were challenges that I did not account for. I was unable to measure the learner outcomes for this capstone because I did not have the pre/post test printed. I learned that in the future I will have to make a checklist, be fully be aware of technical difficulties I may experience, and conduct a mock run prior to the presentation. Overall, the seminar had positive and negative aspects, and served the original purpose. If this seminar was to be repeated, it would require some improvements, but would also need to keep the positive aspects the same in order to make it successful.

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Proposal

Introduction:

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Through my community health nursing class, I discovered that Diabetes Self Management Education (DSME) was generally covered by one's private health insurance, but was not covered or available to the publicly insured or self pay patients. Therefore, those most in need of the education that would enable them to care for themselves once diagnosed often have the least access to this critical information.

Worse yet, in the United States today, there is inadequate emphasis on preventive education, which would assist those at risk to identify their personal risk factors, and make lifestyle changes that would delay or prevent the onset of the disease. I was surprised that something as important as preventive education was not being aggressively offered to everyone – especially the underserved.

As a nursing student I have been taught that one of the major roles we assume is that of patient educator. I feel that this Honor's Capstone experience will be a great opportunity to develop a teaching module for underserved individuals who are at risk of developing diabetes. Information to be offered will include an overview of the disease, along with information on how to manage one's diet, and incorporate exercise into a daily health routine. In summary, the purpose of my capstone will be to develop and implement an educational seminar, and collectively incorporate materials into a teaching toolkit to be saved for future use by the health center where I plan to present the program.

Project Overview:

Title: Dancing with Diabetes

Purpose: To educate and engage those at risk for developing diabetes in an hour long seminar that focuses on the processes of the disease, risk factors, lifestyle changes, and involves the group in a dance class at the end.

Goal: Design a presentation, which will focus on the preventative aspects of diabetes

Objectives:

- o Power point presentation- explaining the pathophysiology of diabetes, identification of risk factors, and looking at ways to delay, or prevent the onset of the disease, by use of diet and exercise.
- o Engage the group in discussion of what they enjoy eating, and how to improve their diet by including healthy food choices, and utilizing portion control.

- Develop and demonstrate a beginning dance program

Learner outcomes:

Attendees will be able to:

- Identify 3 personal risk factors
- Participate in the "Create Your Own Plate" activity
- Develop an individualized exercise program using dance

Methodology:

- Develop 1-2hour seminar course to be offered through the Tri county area
- Offer the seminar to the underserved clients of the Tri County area
- Evaluate the seminar via the development and implementation of a pre/post test
- Coalesce the materials developed and provided in a teaching toolkit that can be used in the future at the Tri County community health center

Content:

- Diabetes Seminar
 - What is Diabetes
 - How does it affect the body
 - Types of Diabetes
 - Differences
 - Risk Factors
 - Testing for Diabetes
 - Complications That Can Occur
 - Prevention
- Recommendations for diet
 - Foods That are Recommended
 - Ways to Follow a Diet
 - Create Your Plate
- Exercise
 - Active Fun Dance class (30 min)
 - Benefits of dance
 - Muscles being worked
 - Calories being burned

Evaluation

- Anonymous survey filled out by participants before and after the seminar

Timeline:

- 4/11 Develop the focus of seminar
- 4/11 Research information on the topic of pre-diabetes
- 5/11 Create a goal, purpose, learner objectives, and methodology of capstone
- 5/11 Create PowerPoint focused on pre-diabetes
- 8/11 Create exercise program to co-inside with improving health
- 9/25/11 Connect with Tri County about space available and dates open for seminar

9/30/11	Commit to an available date for the seminar
10/5/11	Meet with Tri County to run through the seminar
10/31/11	Deliver seminar presentation
11/12/11	Evaluate how the presentation went, and areas to improve
11/28/11	Compile information and create a teaching toolkit
11/30/11	Deliver the teaching toolkit to Tri County to be available for the future

Sources used:

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Pre/Post Test

1. Can you identify 2 ways diabetes affects the body?
2. Can you name 3 personal risk factors?
3. Can you name 1 lifestyle change necessary to lessen your risk for diabetes?
4. Do you understand the relationship between lack of portion control and its impact on personal risk factors for diabetes?

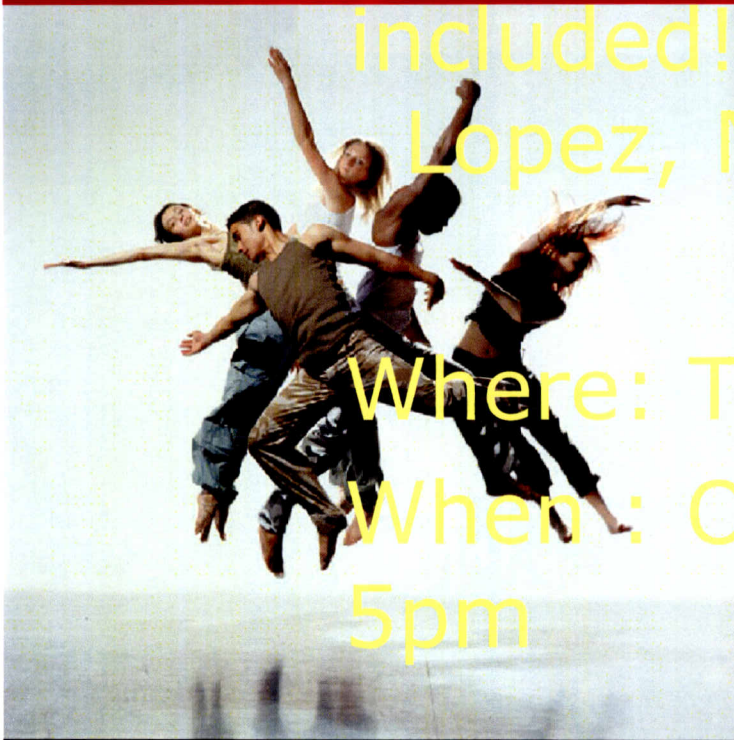


DANCING WITH DIABETES



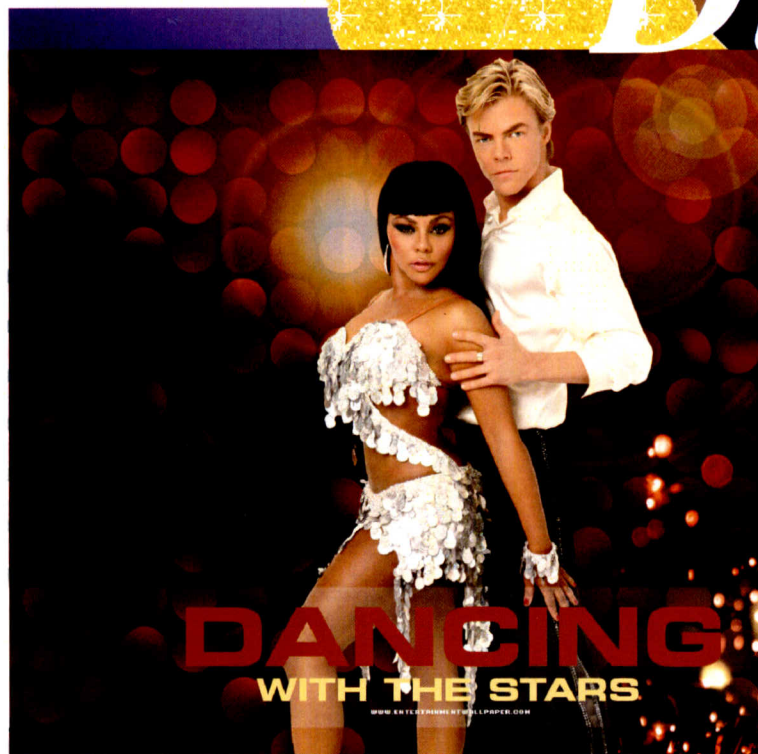
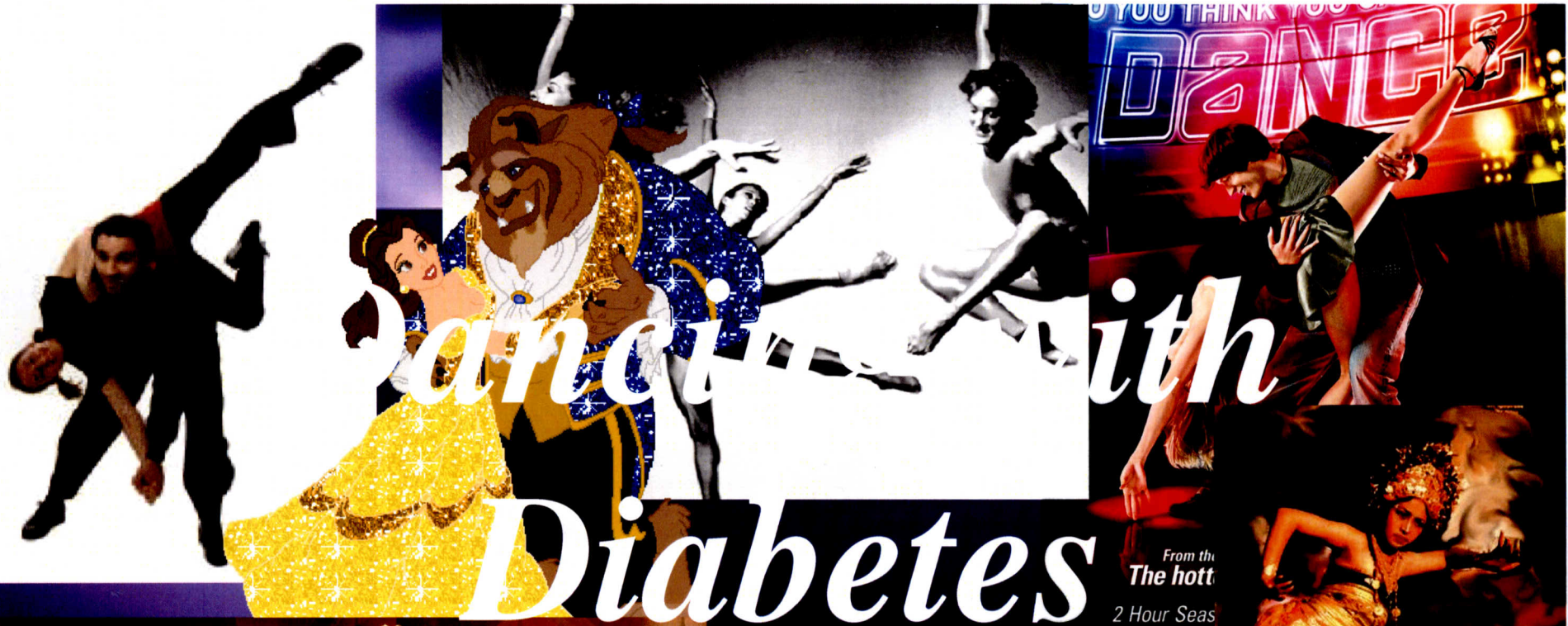
A fun FREE interactive seminar focused on diabetes prevention with a dance class

included! Presented by Rachel Lopez, NIU Nursing student



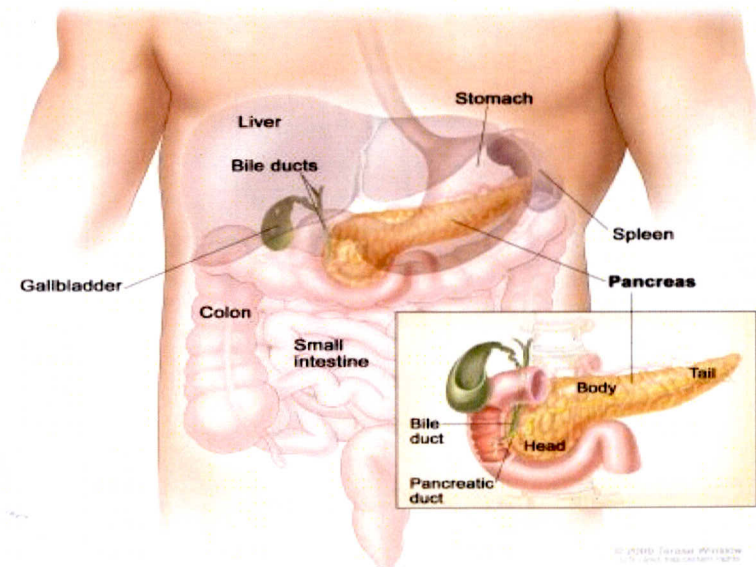
Where: Tri County Clinic

When : October 28th 3pm-5pm



What is Diabetes

- ✦ A condition where the body does not produce or properly use insulin.
- ✦ Insulin is a hormone that is needed to convert the food you eat into energy needed for daily life

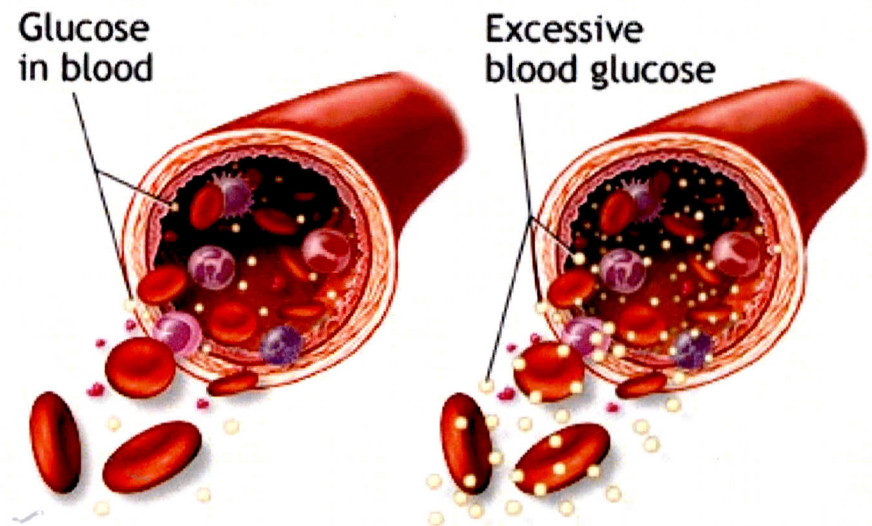


American Diabetes Association

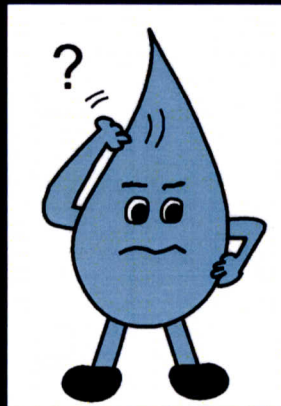
WHAT HAPPENSS ...

- ✦ Without enough insulin the sugar does not get to the body parts, and builds up in your blood increasing your blood glucose levels

Your goal is to maintain normal blood glucose levels

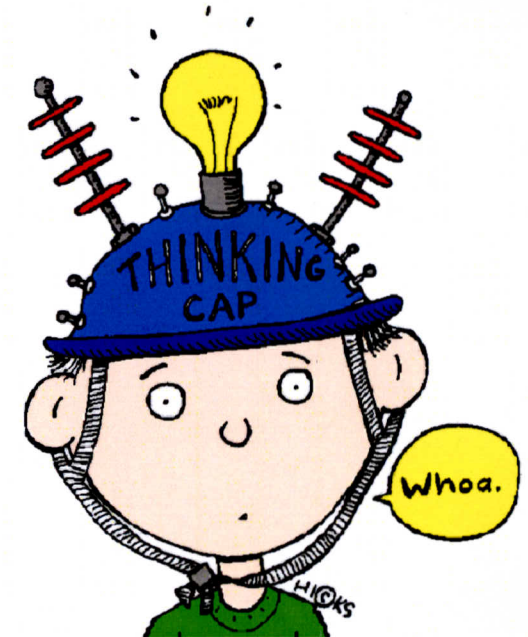


COMMON MISCONCEPTIONS



Common Misconceptions about Diabetes

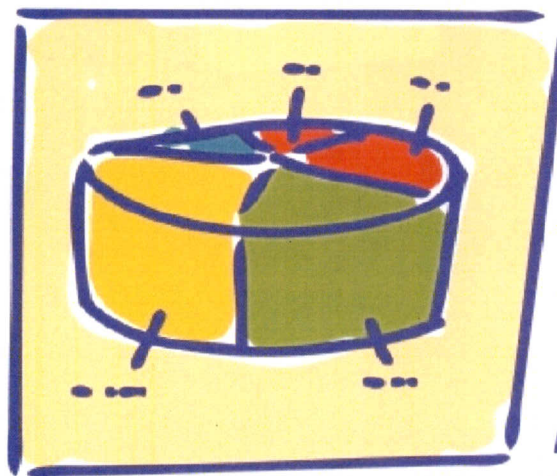
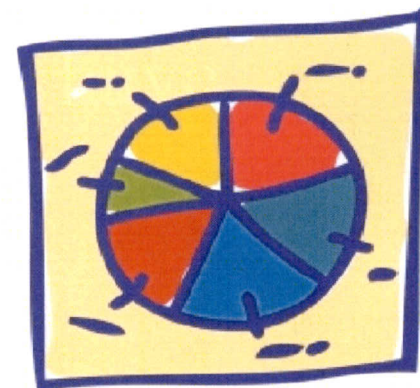
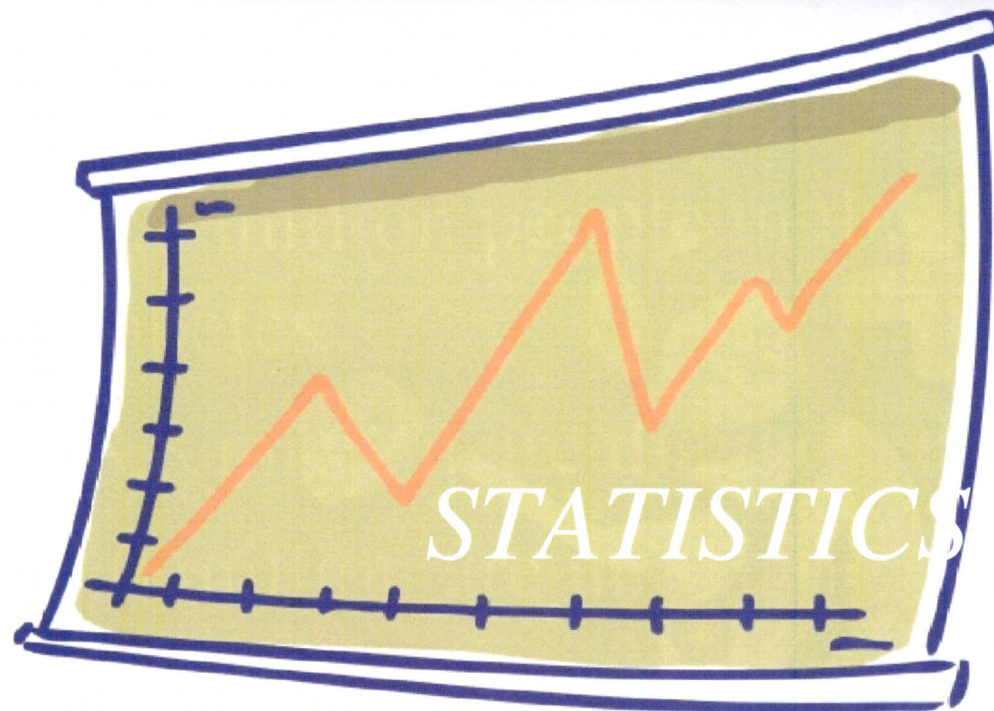
- ★ Fruit is a healthy food, so you can have as much as you would like
 - ★ Although fruit is healthy, fruit does contain carbohydrates and should be incorporated into your meal plan



More Common Misconceptions

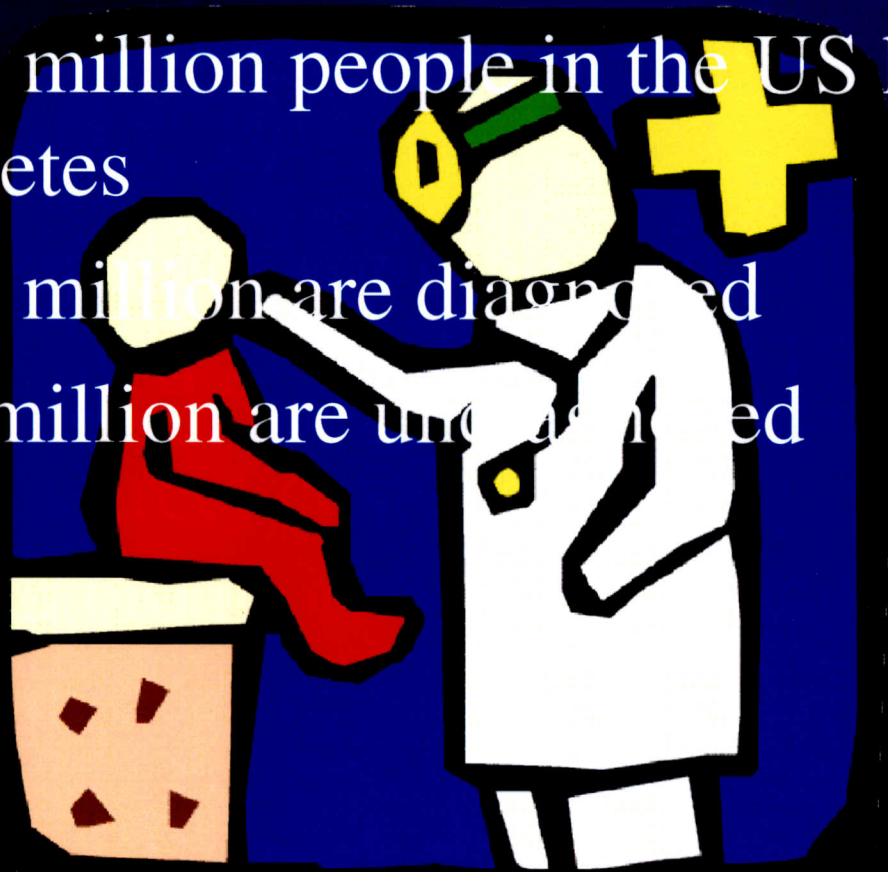
- ★ You can catch diabetes from someone else
 - ★ Diabetes is not contagious and can not be caught like a cold or flu
- ★ Myth: People with diabetes can't eat sweets
 - ★ If in combination of a healthy diet, and exercise then sweets can be eaten by someone who has diabetes





Statistics about Diabetes

- ★ 25.8 million people in the US have diabetes
- ★ 18.8 million are diagnosed
- ★ 7.0 million are undiagnosed



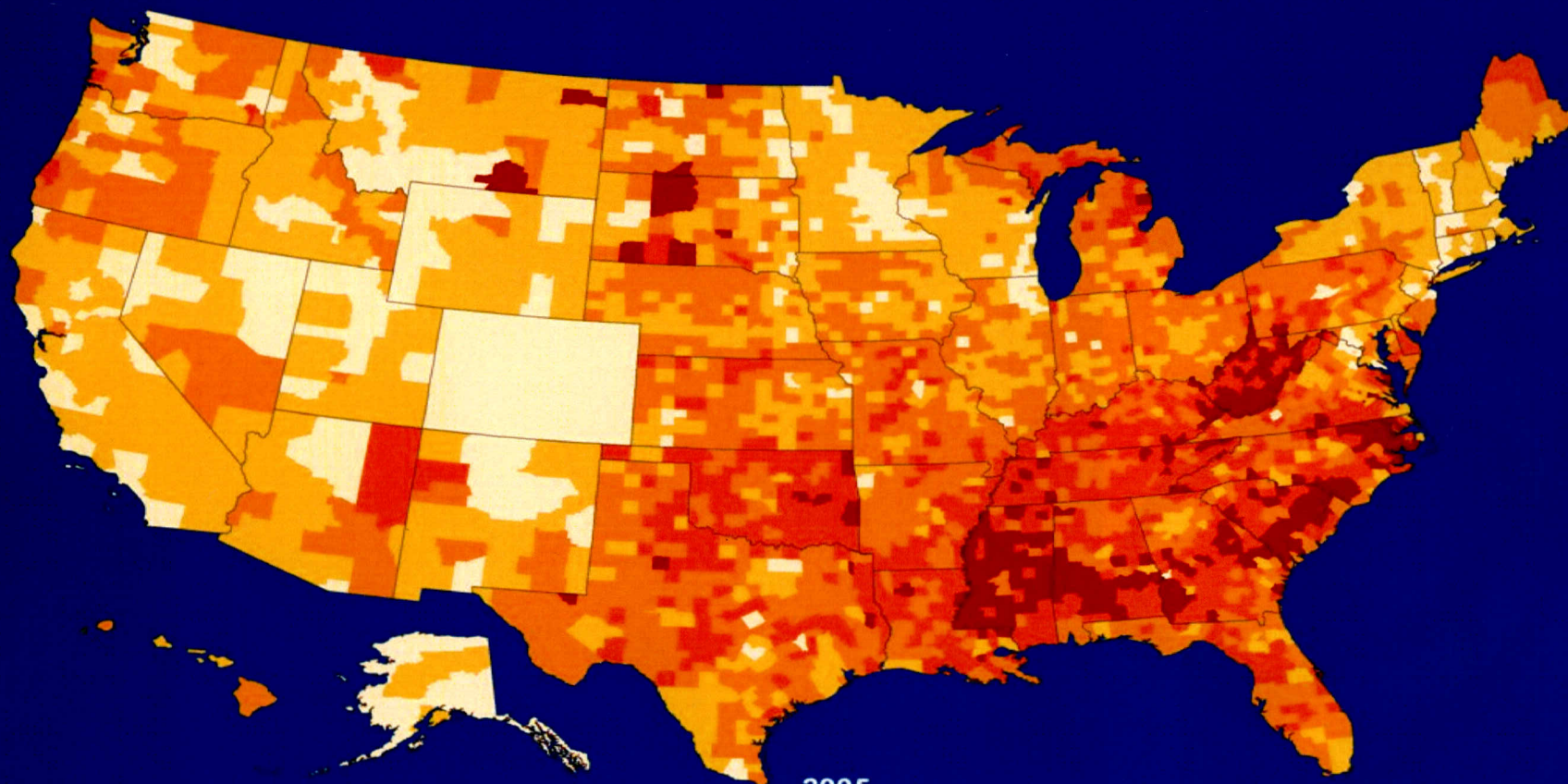
American Diabetes Association

Statistics about Diabetes

- ✦ In 2007 diabetes contributed to 231, 404 deaths
- ✦ The total cost of diagnosed diabetes in the United States (2007) is 174 billion
- ✦ The indirect costs (disability, work loss, premature mortality) is a total of 58 billion



Prevalence of Diabetes in the US



2005
Percent of adults ≥ 20 years old with diabetes
Natural Breaks

0 - 6.5
6.6 - 8.0
8.1 - 9.4
9.5 - 11.1
11.2 - 15.0

Types of Diabetes

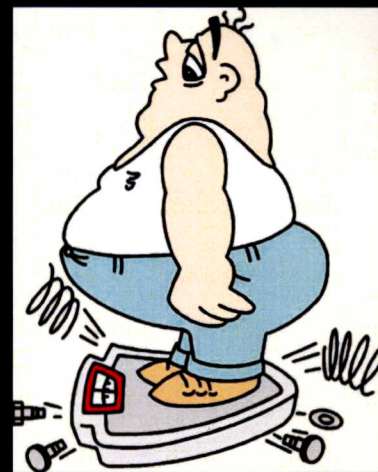
- ✦ Pre-diabetes
- ✦ Type 1
- ✦ Type 2



American Diabetes Association

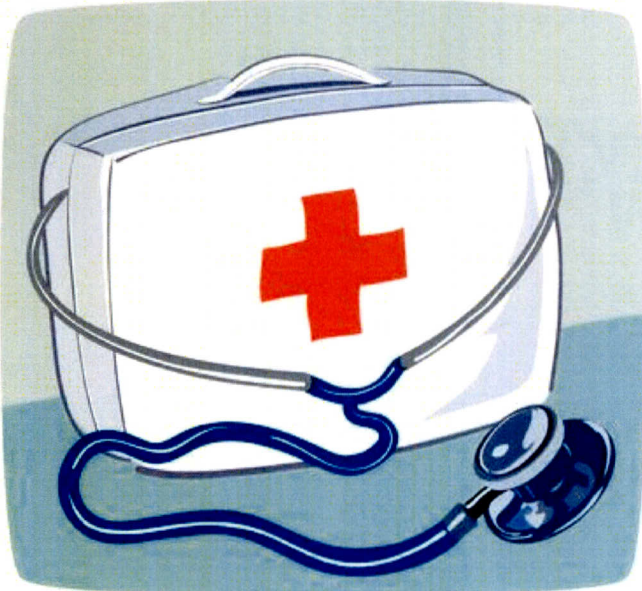


Pre- Diabetes



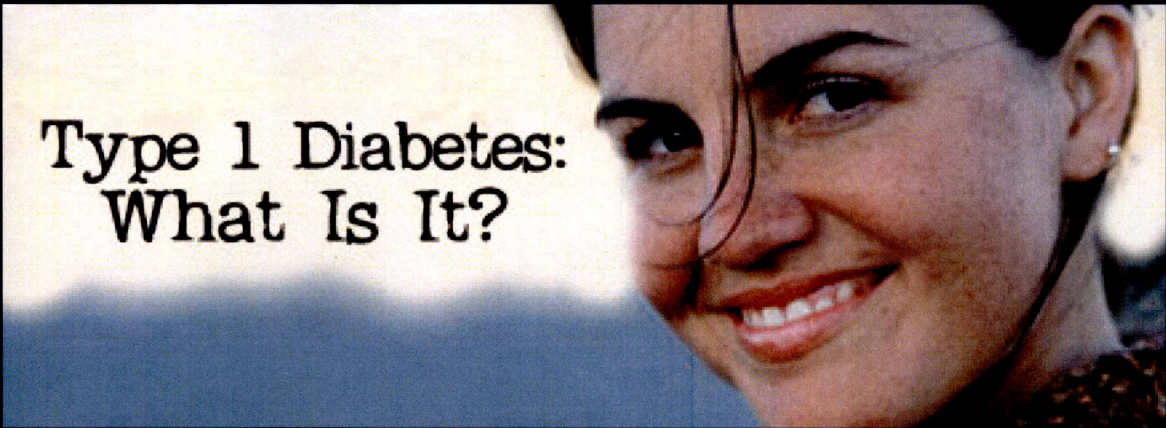
Pre- Diabetes

- ✦ Pre-diabetes: occurs before developing type 2 diabetes patients often have blood glucose levels that are higher than normal, but not high enough to be considered diabetic





TYPE 1 DIABETES



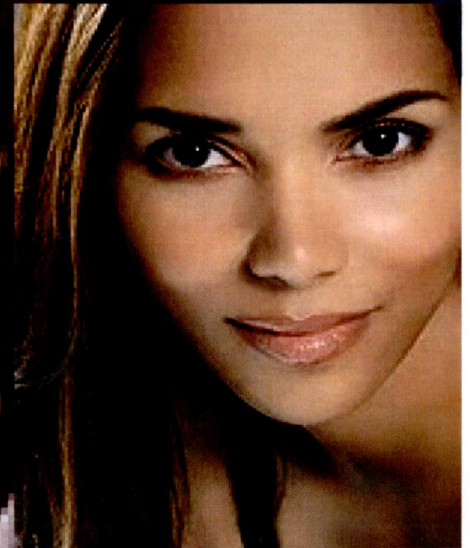
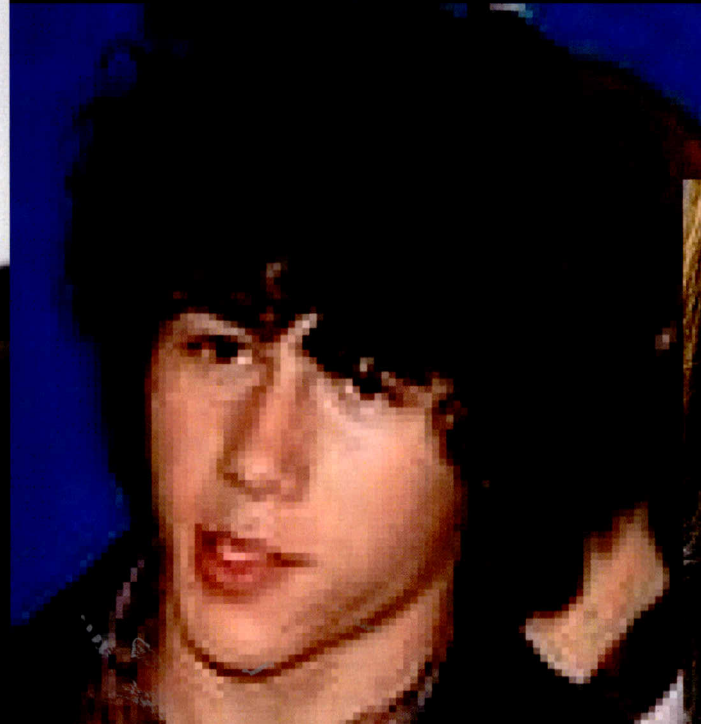
Type 1 Diabetes:
What Is It?

Type 1

- ✦ In type 1 diabetes your body makes little or no insulin

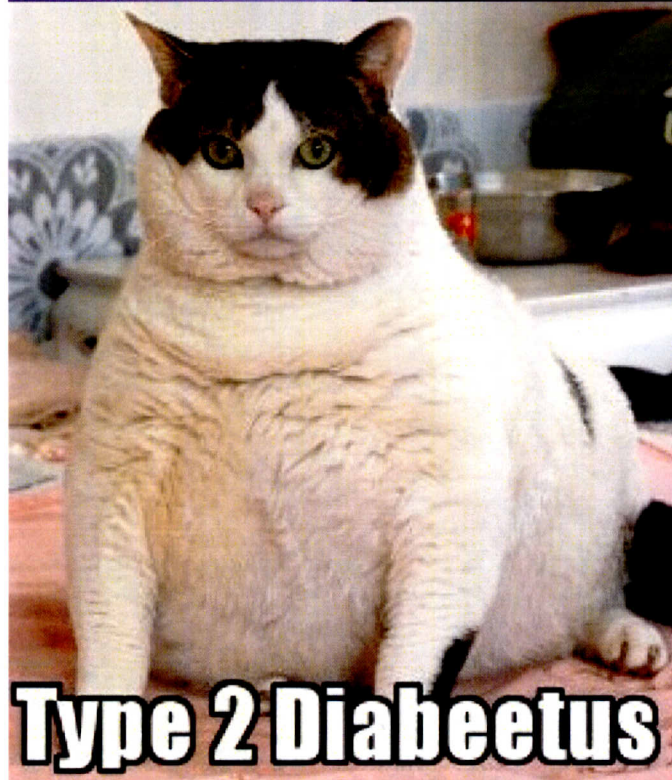
- ✦ Due to genetic predisposition

- ✦ Occurs in children, and early teenage years

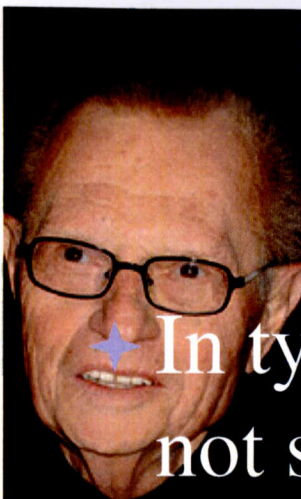
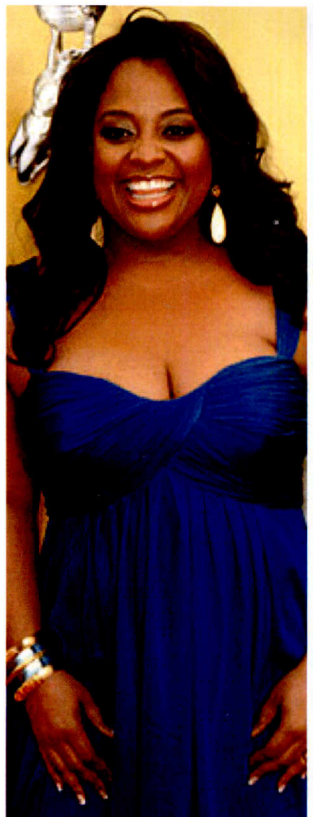




TYPE 2 DIABETES



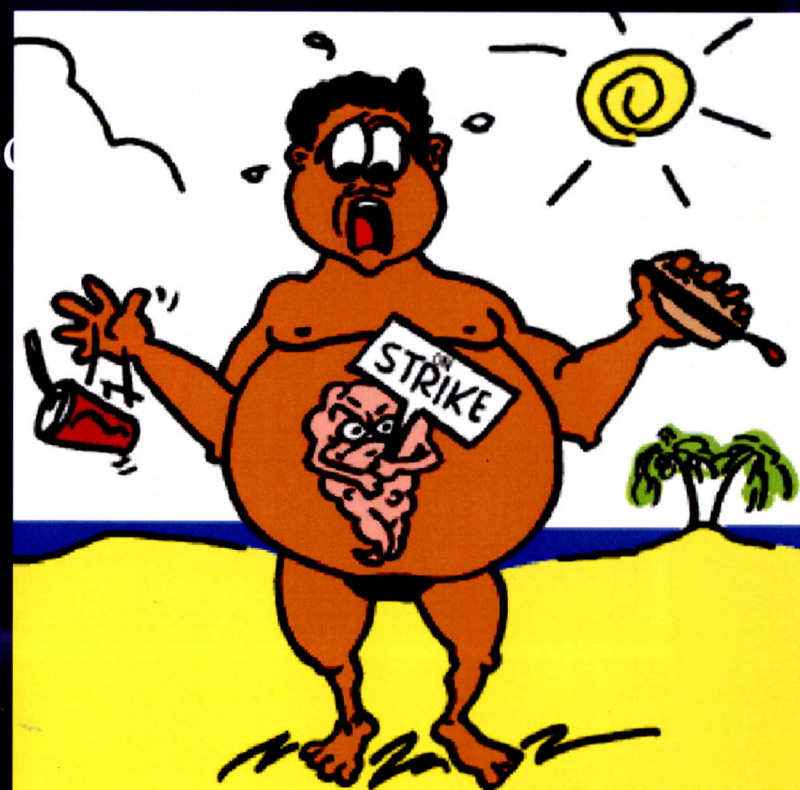
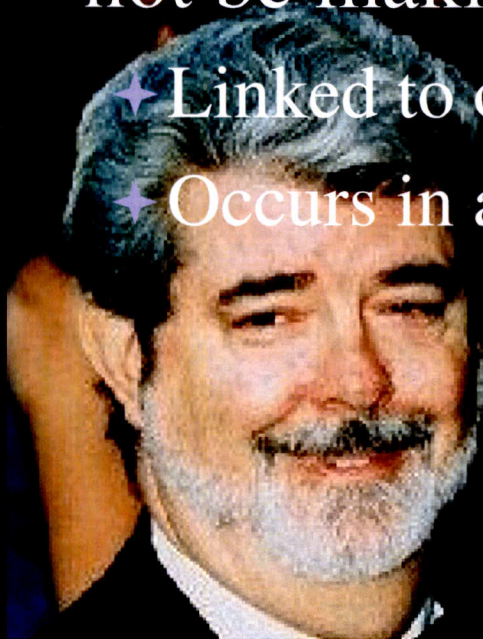
Type 2 Diabeetus



Type 2

★ In type 2 diabetes, your pancreas may not secrete enough insulin, or you may not be making enough insulin

- ★ Linked to obesity
- ★ Occurs in adulthood



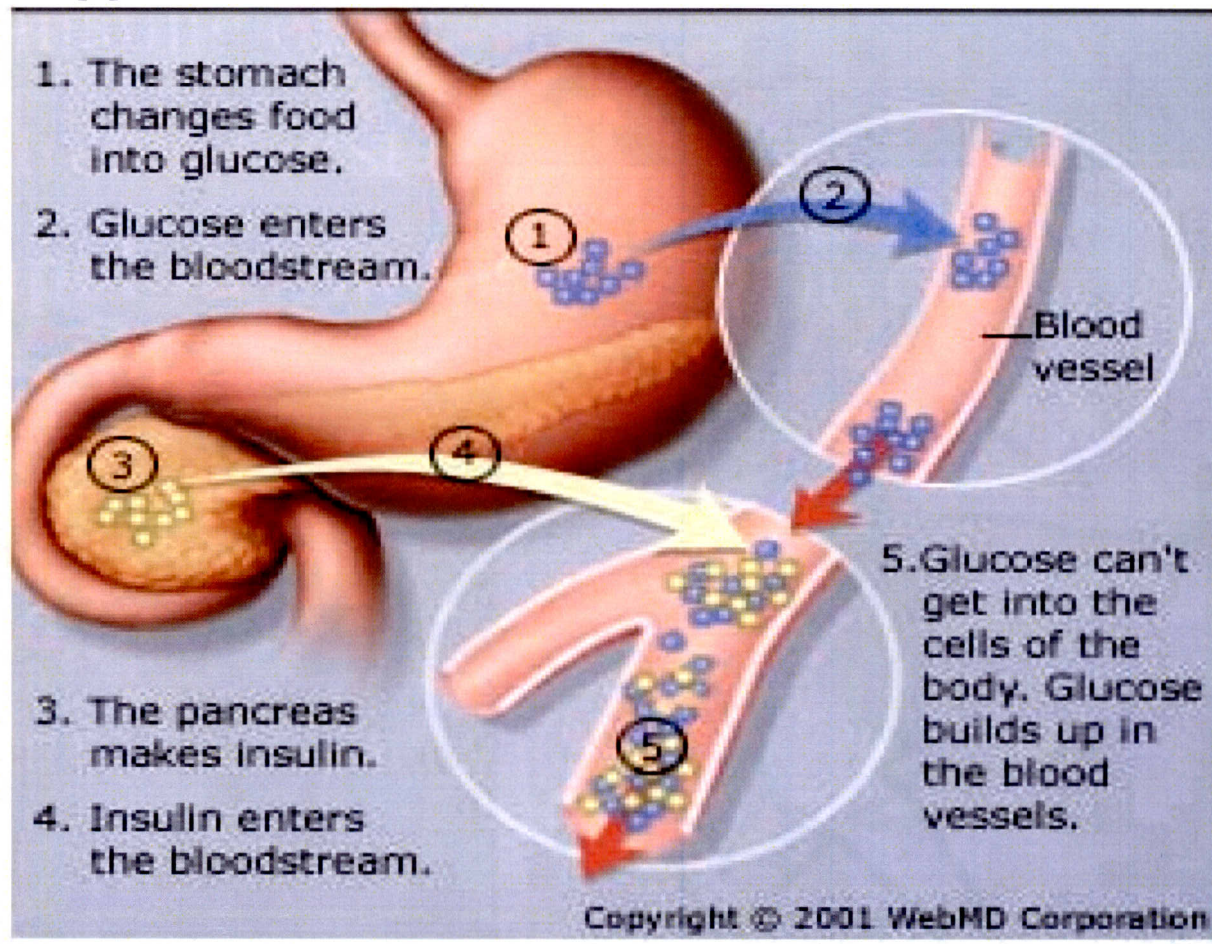
Type 2

Type 2 Diabetes

1. The stomach changes food into glucose.
2. Glucose enters the bloodstream.

3. The pancreas makes insulin.
4. Insulin enters the bloodstream.

5. Glucose can't get into the cells of the body. Glucose builds up in the blood vessels.



Signs and Symptoms of Diabetes

- ✦ Urinating often
- ✦ Extreme thirst
- ✦ **Rapid weight loss**
- ✦ **appetite**
- ✦ Skin, vaginal infections
- ✦ **Bad breath**
- ✦ Blurred vision



Main symptoms of Diabetes

blue = more common in Type 1

Central

- Polydipsia
- Polyphagia
- Lethargy
- Stupor

Eyes

- Blurred vision

Breath

- Smell of acetone

Systemic

- Weight loss

Respiratory

- Kussmaul breathing (hyper-ventilation)

Gastric

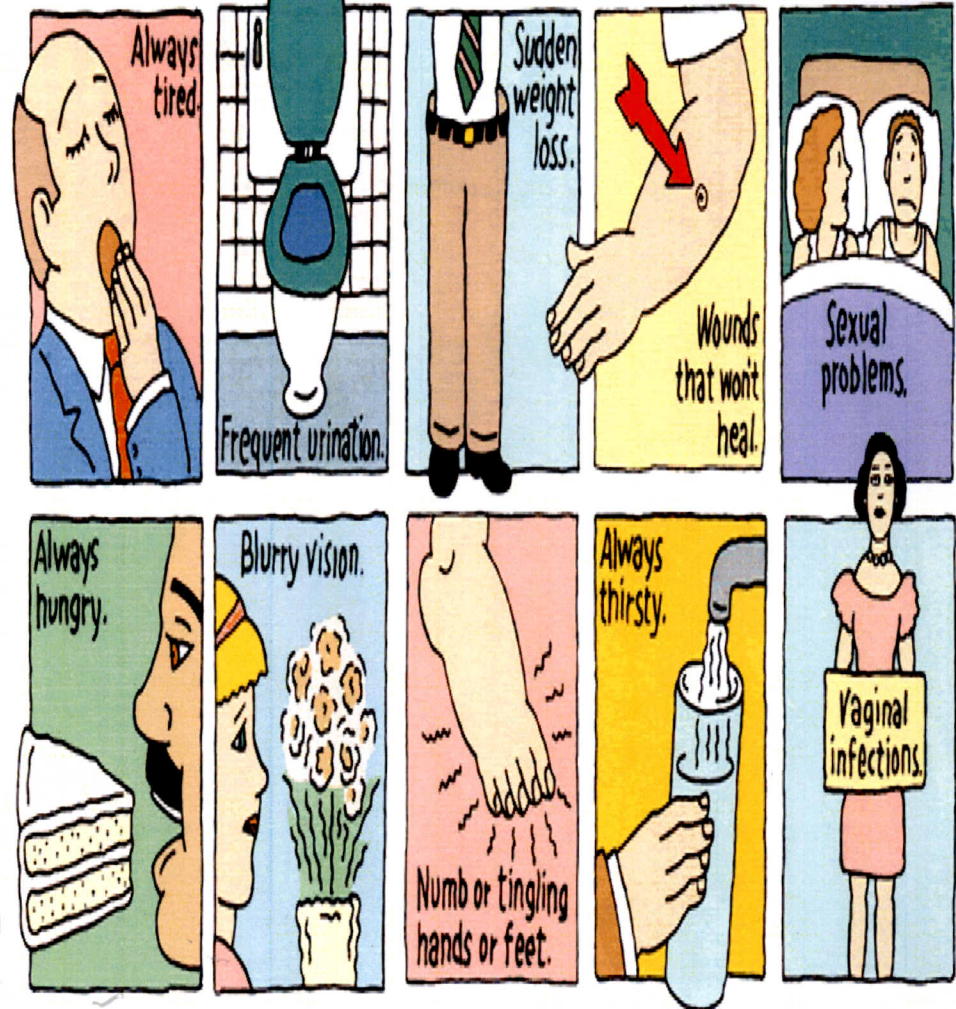
- Nausea
- Vomiting
- Abdominal pain

Urinary

- Polyuria
- Glycosuria

DIABETES

KNOW THE SYMPTOMS



RISK FACTORS



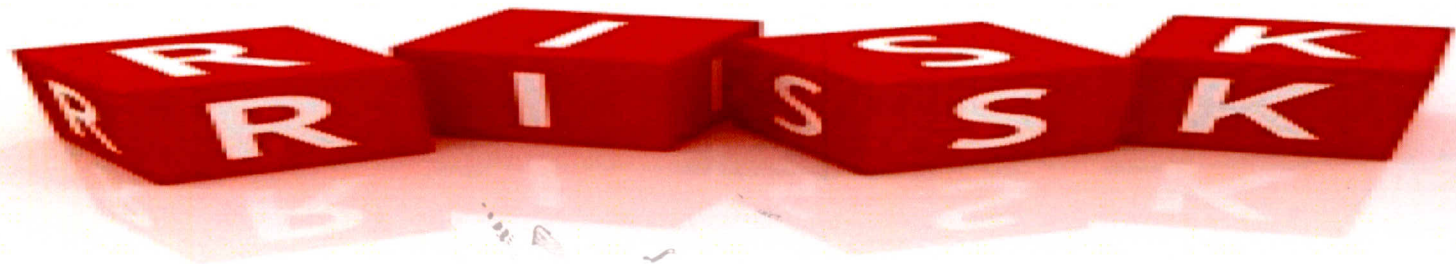
Different types of risks factors

★ Modifiable

- ★ This means you can change this risk factor, such as changing your diet

★ Non-modifiable

- ★ Is something that you can't change such as genetics, and family history



Risk Factors for Diabetes

- ★ Type 1

- ★ Genetics

- ★ Type 2

- ★ Genetics

- ★ Those over the age of 45

- ★ Those with a history of diabetes

- ★ Those who are overweight

- ★ People who do not exercise regularly





Risk factors for Type 2 Diabetes

- ✦ Those with low HDL cholesterol, or high triglycerides, high blood pressure
- ✦ Those who are Non-Hispanic black, Hispanic/Latino Americans, Asian Americans, Pacific Islanders, and American Indians
- ✦ Women who in the past have had gestational diabetes, or who have had a baby 9 pounds or more at birth

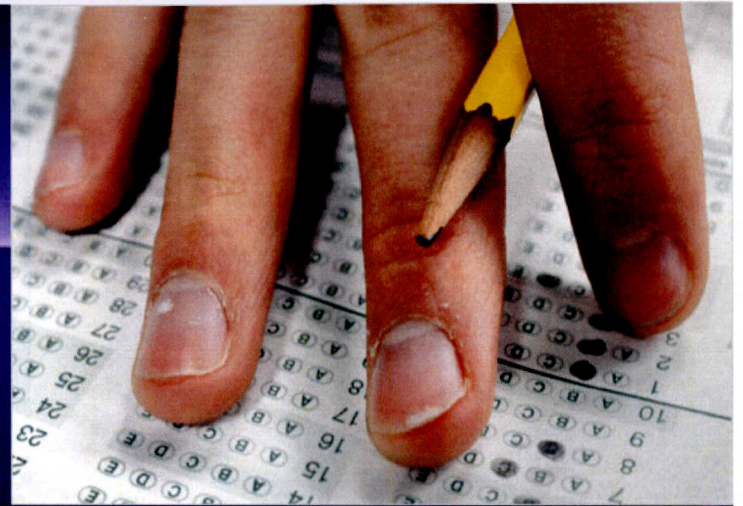
Testing for Diabetes

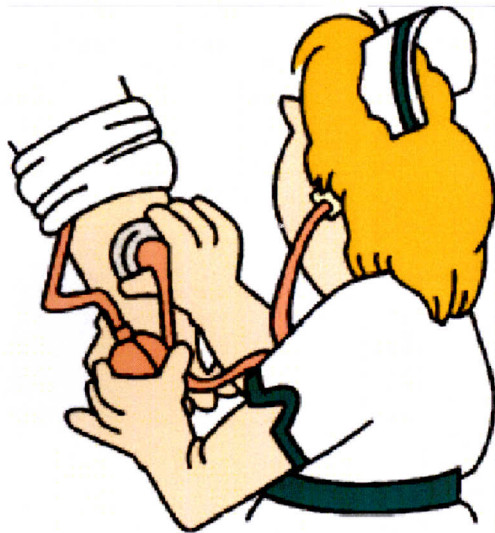
- ✦ Diabetes Risk Test ADA (Handout Given)
- ✦ Testing for diabetes: A1C test, the fasting plasma glucose test, or the oral glucose test
- ✦ Screening usually done with a fasting blood test





TESTING FOR DIABETES



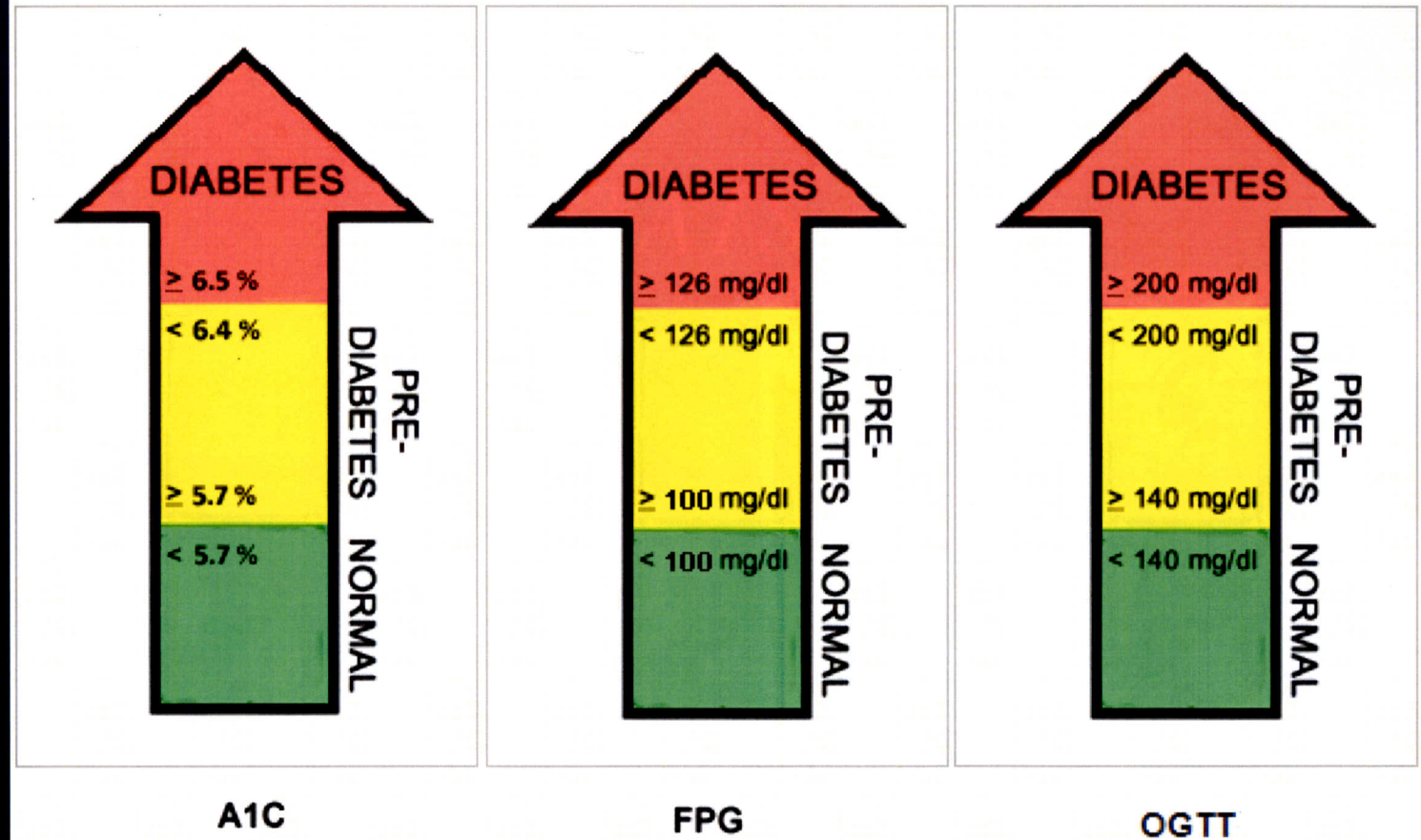


Testing for Diabetes

Fasting Blood test

- ✦ Conducted in morning
- ✦ Should not eat anything after dinner the night before
- ✦ 2 tests higher than 126mg per dL, on 2 different days indicates diabetes
- ✦ Test results from 100 to 125mg per dL suggest pre-diabetes

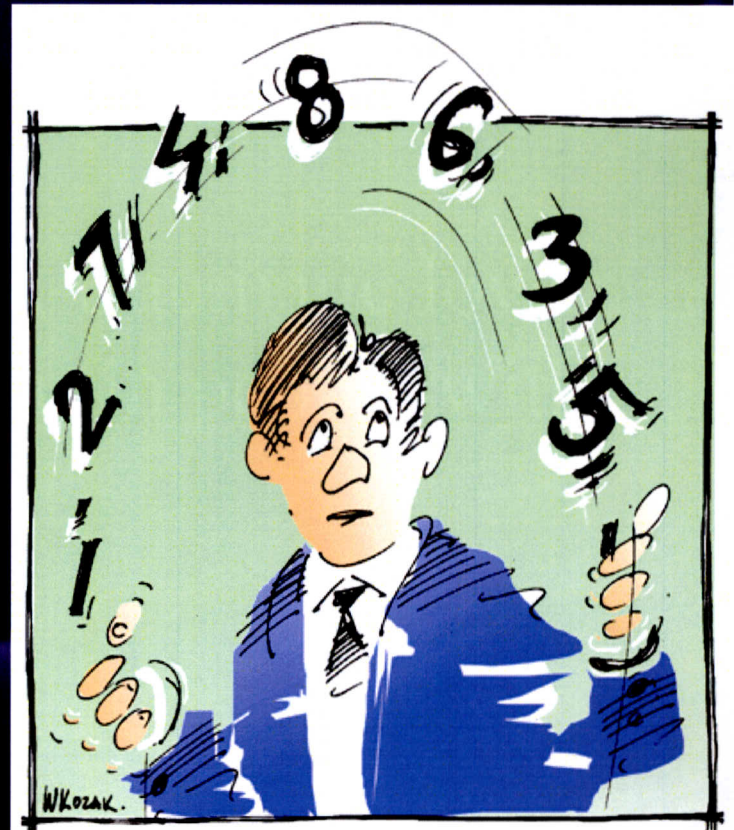
Levels for Each Test



score is $\hat{y} = b_0 + b_1x$

$$= 1.5/2 \cdot se \sqrt{1 + \frac{1}{n} + \frac{n(x_0 - \bar{x})^2}{n(\sum x^2) - (\sum x)^2}}$$
$$= 3.169 \cdot 3.22 \cdot \sqrt{1 + \frac{1}{12} + \frac{12 \cdot (0 - 2.5)^2}{12 \cdot 25 - (0)^2}}$$

STATS





Statistics

- ✦ Diabetes is the leading cause of new cases of blindness among adults 20-74
- ✦ Diabetes is also the leading cause of kidney failure, and accounts for 44% of new cases in 2008
- ✦ More than 60% of non-traumatic lower limb amputations occur in people with diabetes

COMPLICATIONS





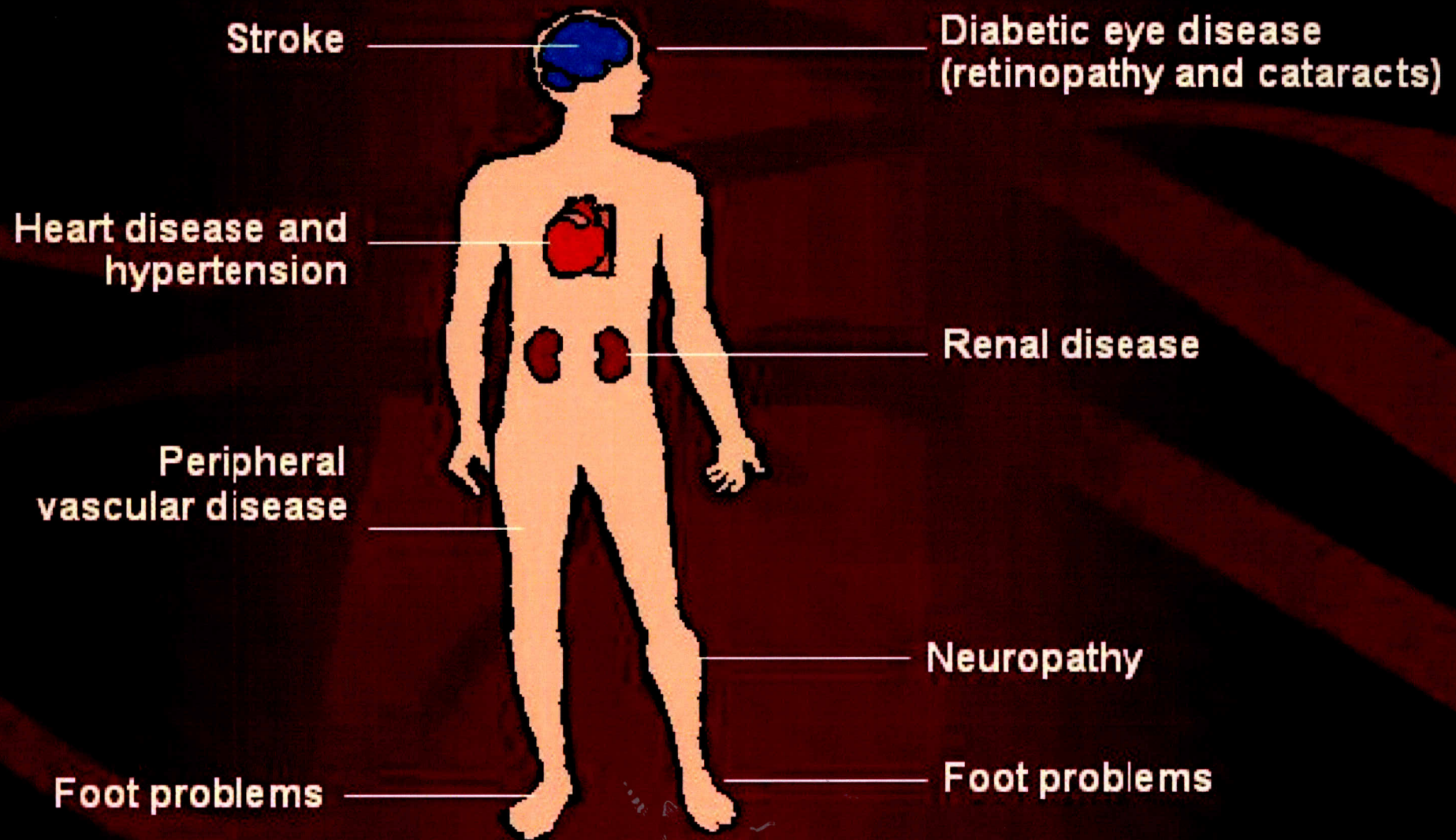
Complications of Diabetes

- ★ Peripheral artery disease- poor blood flow in the extremities
- ★ High blood glucose injuring the walls of blood vessels
- ★ Glaucoma- pressure in the eye causing loss of sight)
- ★ Cataracts
- ★ Retinopathy- disease of retina causing loss of vision

Diabetes: Complications

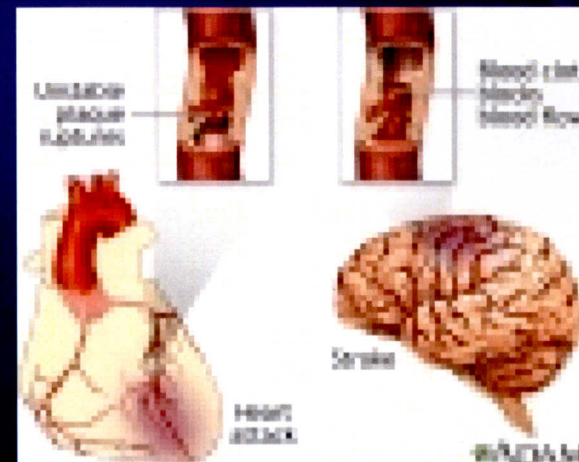
Macrovascular

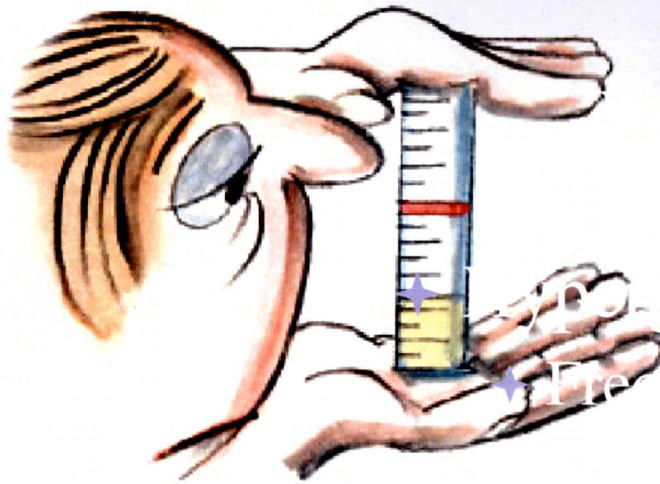
Microvascular



Complications Continued

- ★ Kidney failure
- ★ Gum disease
- ★ Amputation
- ★ Bladder control
- ★ Stroke
- ★ Ketoacidosis- body cannot use the sugar, and products (ketones) build up





High and Low Blood Sugar

★ Hyperglycemia (high blood sugar)

- ★ Frequent urination, increased thirst, high levels of sugar in the urine

- ★ Can lead to Ketoacidosis which is a diabetic coma from a build up of ketones

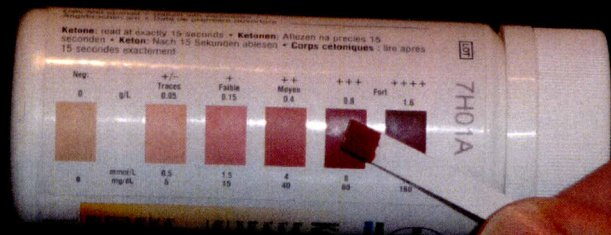
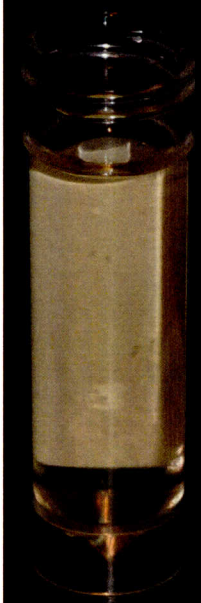
- ★ Ketones are a waste product the body, produced by the breakdown in fat

★ Hypoglycemia (low blood sugar)

- ★ Shakiness, dizziness, sweating, hunger, headache, pale skin color, sudden moodiness, jerky movements, seizure, confusion, tingling sensations around the mouth

Uncontrolled Hyperglycemia

- ✦ Ketoacidosis is from a build up of ketones, is life threatening and requires immediate treatment
- ✦ Ketones are waste from your body breaking down fats, which the body can not tolerate a large amount of them

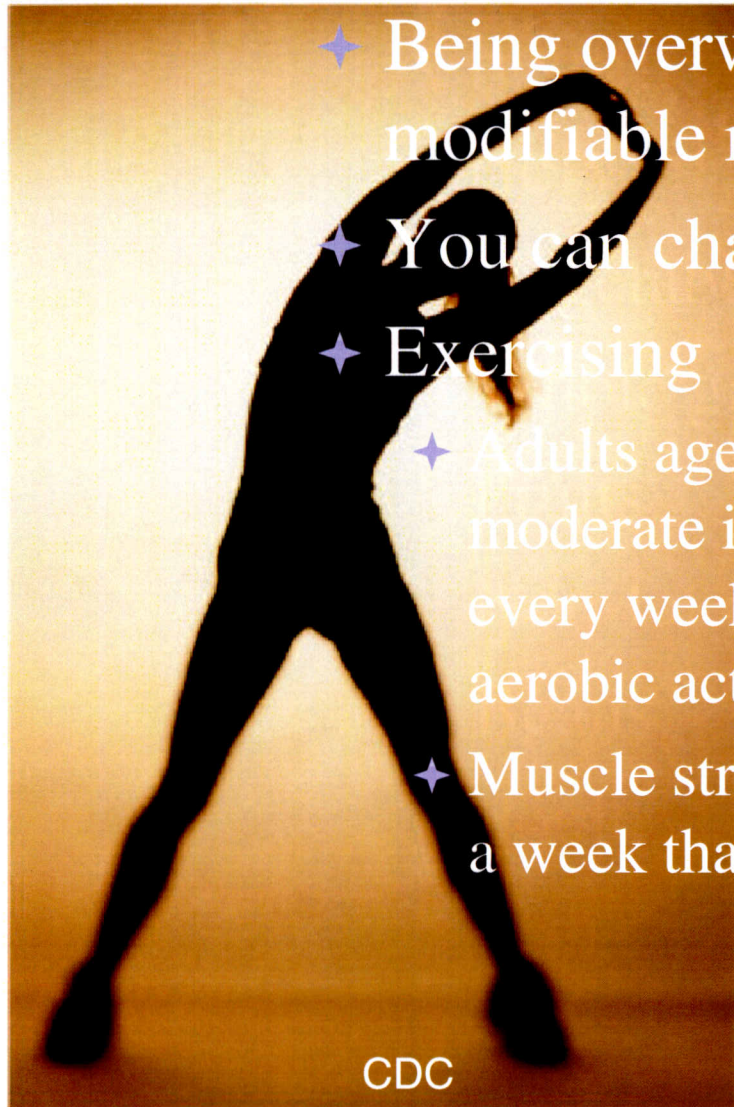




PREVENTION



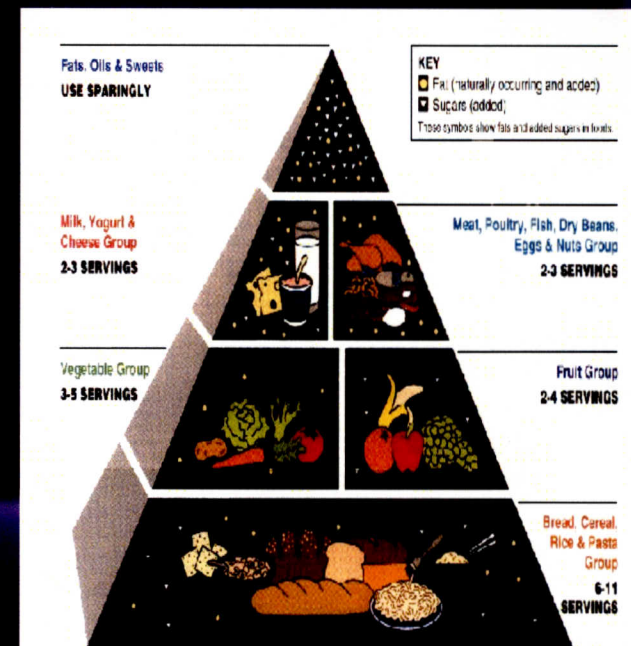
Prevention of Developing Diabetes



- ★ Being overweight is one of the leading modifiable risk factor for type 2 diabetes
- ★ You can change this by watching your diet
- ★ Exercising
 - ★ Adults age 18-64 need at least 2 1/2 hours of moderate intensity aerobic activity (brisk walking) every week or 1 hour and 15 minutes of vigorous aerobic activity PLUS
 - ★ Muscle strengthening activities on 2 or more days a week that work all major muscle groups

Nutrition

- ✦ A healthy diet includes eating a wide variety of foods including:
 - ✦ Vegetables
 - ✦ Whole grains
 - ✦ Fruits
 - ✦ Non-fat dairy products
 - ✦ Beans
 - ✦ Poultry
 - ✦ Fish



Ways to Help You Follow Your Diet

- ★ Following the Food Guide Pyramid
- ★ Creating your Plate
- ★ Carbohydrate counting
 - ★ Keeping track of how many carbohydrates you eat and setting a maximum amount to eat



Create Your Own Plate

- ✦ Creating your own plate is a way to manage your diet with portion control
- ✦ Larger portions of non-starchy vegetables
- ✦ Smaller portion of starchy foods



Creating Your Own Plate

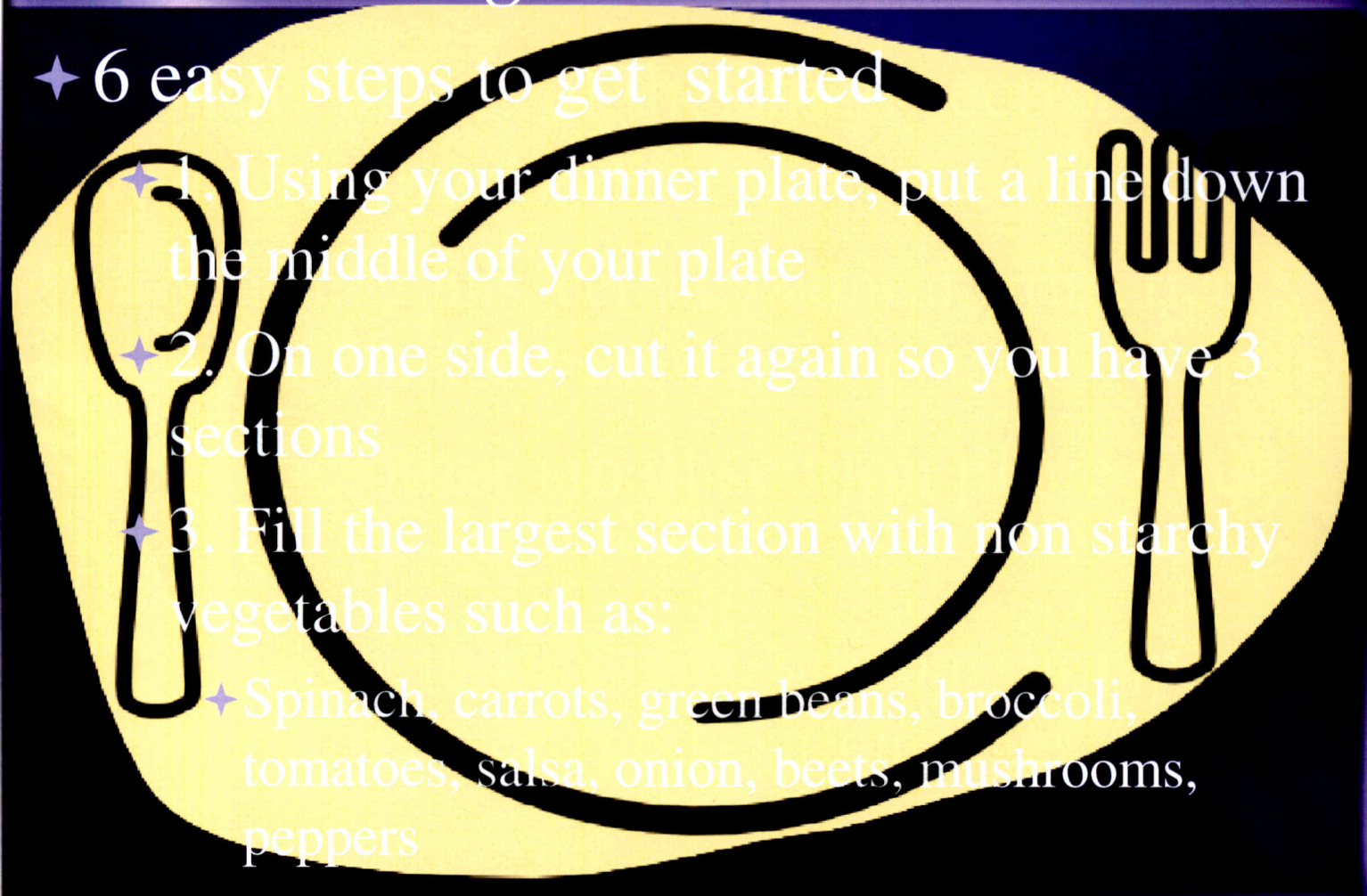
★ 6 easy steps to get started

★ 1. Using your dinner plate, put a line down the middle of your plate

★ 2. On one side, cut it again so you have 3 sections

★ 3. Fill the largest section with non starchy vegetables such as:

★ Spinach, carrots, green beans, broccoli, tomatoes, salsa, onion, beets, mushrooms, peppers



Creating Your Plate Continued

✦ 4. Now in one of the small sections put your starchy foods

✦ Whole grains, cereal, oatmeal, grits, rice, pasta, cooked beans, peas, potatoes, chips

✦ 5. In the other small section place your

✦ Chicken, turkey, tuna, salmon, shrimp,

✦ Ham, mussels, pork, sirloin, eggs, cheese





Last Steps of Creating Your Own Plate

- ★ 6. Add an 8oz glass of non-fat or low fat milk
- ★ If you don't drink milk than you can add another small serving of carb (Ex small roll, or yogurt)
- ★ Add a piece of fruit or 1/2 cup fruit salad and your meal is READY!!
- ★ Other examples for fruit: fresh, frozen, canned in juice, or frozen in light syrup

Create Your Own Plate

- ★ http://www.youtube.com/watch?v=A6LZijdsGu0&feature=player_embedded#at=40

Let's Dance!!!

- ✦ 30 minute dance class including aerobic exercise
- ✦ Simple to follow
- ✦ FUN!!

